TECHNICAL BRIEF

EPA and National Institute of Standards and Technology Sign Agreement to Study Drinking Water Decontamination in Buildings

The EPA's National Homeland Security Research Center (NHSRC), headquartered in Cincinnati, Ohio, recently signed an interagency agreement with the National Institute of Standards and Technology (NIST), an agency within the U.S. Department of Commerce's Technology Administration. The purpose of the agreement is to study and develop decontamination methods for a building's drinking water lines and appliances.

Background

As a result of intentional contamination of a community's water supply, contaminants may travel through the water distribution system and reach a building's water pipes and appliances. Water suppliers and emergency responders will need a strategy to deal with the resulting hazard to occupants that addresses the many different types of water lines and pipes.

A portion of one of NIST's two full-scale models of a building's piping network which will be converted for study under the agreement.

Removal of contaminants from household pipes and appliances will require a different approach compared to dealing with contamination in larger water distribution lines and water mains or in the drinking water treatment plant itself. For example, removing residual contamination from a two-foot diameter water main underneath a city street requires a different strategy than if the contaminants were in a half-inch diameter copper water pipe in a home. In addition, the potential for contamination of household appliances such as dish washers or ice makers raises unique and complex challenges that also must be overcome as part of an overall strategy for responding to such events.

Research Agreement

Researchers under the interagency agreement will produce a technical resource document for both emergency and follow-up responders that will provide an evaluation of the impacts of contaminants on a building's water supply. It also will list ways to remove the contaminants. To develop this technical resource document, studies will be carried out on small-scale as well as full-size systems. Attachment and removal mechanisms of high-priority contaminants and decontamination procedures will be evaluated. Researchers will use safe, surrogate versions of possible biological and chemical contaminants in the tests.

Both EPA and NIST have unique capabilities in addressing the multi-faceted challenges of pipe and appliance decontamination. Since its inception, EPA has been charged with conducting research and development to support efforts in supplying clean, safe drinking water to communities across the

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country. NIST has expertise in characterizing and measuring chemical compounds and other materials on various surfaces. NIST also has a plumbing test facility that can be used to duplicate typical building plumbing systems.

The results of this project will be available for emergency and follow-up responders to assist them in decontaminating water systems. The findings may also have relevance to water contamination problems that are unintentional in nature. The study is currently underway and should be completed by the summer of 2006.

For more information, visit the NHSRC Web site at www.epa.gov/nhsrc.

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